



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/774,461

02/10/2004

Farid Matta

10030542-1

9134

7590

06/13/2006

Ian Hardcastle
AGILENT TECHNOLOGIES, INC.
Legal Department, D:429
P.O. Box 7599
Loveland, CO 80537-0599

EXAMINER

STEIN, JAMES D

ART UNIT

PAPER NUMBER

2874

DATE MAILED: 06/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.		Applicant(s)	
	10/774,461		MATTA ET AL.	
	Examiner		Art Unit	
	James D. Stein		2874	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03/23/06.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 9-11, 13, 16, 18, 19, 22 and 24-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 9-11, 13, 19 and 24 is/are allowed.
- 6) ☒ Claim(s) 16, 18, 22, 25 and 26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This Office Action is responsive to the amendment filed on 03/23/06, which has been fully considered and entered. Claims 1-8, 12, 14-15, 17, 20-21 and 23 are cancelled, and claims 13, 19, and 24 are amended. New claims 25 and 26 have been added. Claims 9-11, 13, 16, 18-19, 22 and 24-26 are pending in the application.

Response to Arguments

Claim 16

In the same manner as the arguments of claims 13, 19 and 24, Applicant has argued that the rejection does not account for the heater to be contained in the module. These arguments are not persuasive. The claims do not preclude the micro heater from being part of a separate system; they do not indicate that the components of the module are integrated together on the same substrate, die package, etc. Moreover, in combining Musk with Pham, one of ordinary skill in the art would have found it obvious to include the micro heater on substrate 24 of module 10 (fig. 1) of Musk.

Moreover, solder *is* a heat-activated adhesive (step 1: heat solder; step 2: adhere two objects together).

sol·der (sŏd'ər)

n.

1. *Something that joins or cements.*

v. sol·dered, sol·der·ing, sol·ders

v. tr.

To serve as a bond between; join.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over [USPUB 2002/0071638] to Musk and further in view of [USPUB 20040052468] to Pham et al. ("Pham"). Fig. 3 of Musk shows an optical module 200 comprising:

an active optical component 40 (laser diode);

an optical fiber 30 arranged with respect to the active optical component 50 to be capable of propagating light 55 along an optical path between the active optical component 40 and the optical fiber 30 [¶0033];

a beam shaping optical component 212 (ball lens) located in the optical path 55 between the optical fiber 30 and the active optical component 40; and

a positioning stage device 22 for moving the optical fiber 30 with respect to the active optical device 40 (see entire document, [0031]);

a frame 20 to which the optical fiber 30 and active optical component 40 (via pad 60) are affixed.

Furthermore, Musk suggests that the positioning device 22 should be a MEMS (micro-electrical mechanical [¶'s 0005, 0006, 0032]) device, or micro-machined movable device, as claimed by applicant. Additionally, Musk teaches the alignment between the fiber 30 and the

Art Unit: 2874

active optical device 40 is optimized (maximized) [¶'s 0042, 0047, 0048, 0058], and holding one of the elements with respect to the other (i.e. means for holding the positioning device in position) after aligning [¶ 0036].

Therefore, Musk teaches the claimed invention except for the module to further comprise a micro-heater that melts solder in order to hold the positioning device 22 in position. Pham discloses a related optical alignment module comprising a micro heater 112 that melts solder to lock the optical device in alignment [0010], which would hold the optical elements in alignment in a more permanent and robust manner than taught by Musk. Furthermore, Pham teaches that heater 112 that heats a solder pool until molten (i.e. activated). The solder is then allowed to cool, thereby solidifying and holding the device in proper alignment positioning (at least ¶'s 0034, 0037, and 0043). It would have been obvious to one of ordinary skill in the art to include this feature in Musk because the solder is reflowable (see entire document), allowing the device to be re-aligned multiple times with the device being held in alignment in a robust manner. It is noted that solder is an adhesive that is extremely well-known in the art. It is noted that solder will hold the positioning device in position while the optical module is uncoupled from any alignment system.

Claims 16, 18, 22 and 25-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over [USPAT 5,870,517] to Wyland, which discloses a related optical alignment device, and further in view of Musk.

With regard to claims 16, 18 and 22, Fig. 3 of Wyland shows an active optical component 28; an optical fiber 48 arranged with respect to the active optical component 28, capable of propagating light along an optical path between the component 28 and the fiber 48; a positioning

Art Unit: 2874

device 66 for moving the active device component 28 with respect to the optical fiber 48; a means 66, 54, 26 for holding the positioning device 26 in position, the means comprising an heat/RF-activated adhesive (col. 5 line, 60; col. 7 lines 39-53).

Therefore, the claimed invention has been disclosed an previously discussed except for a beam-shaping optical component located in the optical path between the fiber 48 and the component 28. Fig. 3 of Musk shows a beam-shaping component 212 positioned in this manner in order to couple light into and/or out of the fiber 30 and active component 40. Therefore, it would have been obvious at the time of the invention to one of ordinary skill in the art to modify Wyland to include a beam-shaping component in order to increase the coupling efficiency between the fiber 48 and the component 28.

With regard to claims 25-26, fig. 3 of Wyland shows the module separate from any alignment system. Furthermore, RF-adhesives (heat activated adhesives) are irreversibly binding after activation.

Allowable Subject Matter

Claims 9-11, 13, 19 and 24 are allowed.

With regard to claims 9-11, none of the cited prior art discloses or suggests both a first and second micro-machined movable stage respectively affixed between: the frame and active optical component, and the frame and the beam-shaping optical component; and the frame and the active optical component, and the frame and the optical fiber. Such configurations would provide for additional optical alignment capability. One of ordinary skill in the art would not have found it obvious to or have been motivated to modify the prior art in order to achieve such

Art Unit: 2874

configurations. Applicant has discovered that the claimed invention provides for enhanced alignment capability.

With regard to claim 13, 19 and 24, the position memory circuit of Kennedy is not used to hold the positioning device in position while the optical module is uncoupled from any alignment system, but rather part of the alignment system 10. One of ordinary skill in the art would not have found it obvious to or have been motivated to modify the prior art in order to achieve such configurations. Applicant has discovered that the claimed invention provides for enhanced alignment capability.

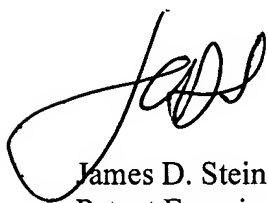
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James D. Stein whose telephone number is (571) 272-2132. The examiner can normally be reached on M-F (8:00am-4:30pm).

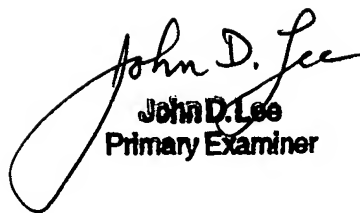
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney Bovernick can be reached on (571) 272-2344. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Art Unit: 2874

A stylized, handwritten signature in black ink, appearing to read 'JDS'.

James D. Stein
Patent Examiner, AU 2874

A handwritten signature in black ink, appearing to read 'John D. Lee'.

John D. Lee
Primary Examiner